

INTERNATIONAL DIGITAL LIBRARIES COLLABORATIVE RESEARCH

Effective Immediately

Proposal Target Dates:

January 15, 1999 (first year competition)

January 15 (following years' competition)

Announcement Number NSF 99-6 (NEW)

INTRODUCTION

This activity is supported by the Division of Information and Intelligent Systems of the Directorate for Computer and Information Science and Engineering, and the Division of International Programs of the Directorate for Social, Behavioral and Economic Sciences. It builds on and extends prior Foundation efforts in digital libraries research.

International digital libraries research is intended to contribute to the fundamental knowledge required to create information systems that can operate in multiple languages, formats, media, and social and organizational contexts. To achieve this, collaborative creation of new research understandings, tools and ideas exploiting the different opportunities offered by materials and technologies in use in different countries is strongly encouraged. Research supported under this program is expected to:

- * identify a collection of information which is not accessible or usable because of technical barriers, distance, size, system fragmentation or other limits;
- * using this as a testbed, create the understanding and new technology to make it possible for such information to be found, delivered to and/or exploited by a distributed set of users; and
- * evaluate the effect of this new technology and its international benefits.

The program's goal is to enable users to easily access digital collections, regardless of location, language or formats, and enable broad use in research, education, commerce and other purposes. Such a global information environment requires research on:

- * interoperable technologies for advanced retrieval of many kinds of information, including ways of adapting to different formats or organizations of databases;
- * technology for intellectual property protection in a global marketplace the development of linked, compatible databases with inherently regional information, such as databases of geographic, botanic, agricultural, demographic or economic data; and

*methods and standards for ensuring long-term interoperability among distributed and separately administered databases; worldwide data mining and self-organizing databases; collective work on preserving and organizing domain-specific content.

While there are now uncoordinated efforts in many countries, cooperative research can help avoid duplication of effort, prevent the development of fragmented digital systems, and encourage productive interchange of scientific knowledge and scholarly data around the world.

This NSF effort will fund the US portion of collaborative digital library projects among investigators from different countries to foster long-term, sustainable relationships between US and non-US researchers and research organizations. Cooperating groups in supported projects are expected to be balanced in terms of level of effort and expertise, and demonstrate the benefits obtainable from complementary and synergistic international research. The research strengths of researchers in different countries should be combined to facilitate work on complex multi-faceted problems relating to the access and use of international distributed and multilingual resources.

CONTENT

Proposals should have the overall research goal of enabling users to access and exploit information in new ways. Research issues include information organization, forms of information distribution, scalability and security techniques for worldwide data systems, and tools to search, store, and deliver information in different media or languages.

Specific research areas falling under this program are:

- * multi-lingual information systems, cross-language retrieval systems, language translation, and language teaching software
- * multi-national digital libraries including sound, data, image, multimedia, software, and other kinds of content
- * interoperability and scalability technology to permit extremely large world-wide collections
- * metadata techniques and tools
- * geospatial, environmental, biological, historical and other information systems in which location is highly relevant, including consideration of best organizations for such systems
- * preservation and archiving of digital scholarly information, including technology and procedures for long-term information asset management
- * social aspects of digital libraries and cross-cultural context studies
- * utilization of digital libraries in educational technology at all levels of instruction

* economic and copyright issues: authentication, payment, rights formalism, trust and fair use

* electronic publishing and scholarly communication technology, including collaboratories, online repositories, and new methods of organizing scientific knowledge distribution.

These topics are not intended to be totally inclusive, but to illustrate and encourage research which opens exciting new research areas, and gives promise of user benefit from international research synergy.

ELIGIBILITY

Multi-country, multi-team projects are required, and proposals to this program must involve at least one research team in the United States and one in another country. A project should have a single jointly developed proposal from all involved groups, which clearly delineates both the division of areas of research and the synergies expected. Each research team is responsible for obtaining support for its part of the project. NSF will not support the non-US portion of a project, nor the US portion of a project not receiving support in the foreign country or countries involved. The NSF proposal must contain, in addition to budget(s) for the US team(s), information indicating the level of investments and efforts for each foreign team. Where desirable, NSF may choose to coordinate review with a foreign funding agency and make joint decisions.

Institutions eligible to apply to the NSF supported portion of this program are US universities and US non-profit research institutions. Each project should not exceed three year's duration with a maximum yearly cost of \$165,000. NSF funding for this initiative is anticipated to be a minimum of \$1M annually.

PROPOSAL CONTENT

Proposal preparation guidelines are in the NSF Grant Proposal Guide, NSF 99-2.

Each proposal must include a plan of work explaining:

- *what the primary research questions are,
- *what information resource is to be used in the project,
- *what area will be investigated,
- *who is likely to use the information and for what purposes, and
- * what benefits are expected to flow from the research.

In addition, the proposal must have a clear and explicit management plan. This includes:

- *details of how cooperation is to be carried out and coordinated,
- *description of and justification for the partitioning of the research activities,
- *processes to be used for coordinating and evaluating progress, and
- * anticipated travel requirements.

Biographical information should be provided for all investigators in the collaborative effort, both US, and non-US as described in the NSF Grant Proposal Guide, NSF 99-2. Citations to participant publications which appeared after July 1, 1998 are encouraged to be given as Web addresses only. A letter of endorsement from the foreign counterparts, which identifies the source of support for the non-US activities, is required.

PROPOSAL EVALUATION

Evaluation criteria applied to all NSF proposals listed in the Grant Proposal Guide, NSF 99-2, are:

1. What is the intellectual merit of the proposed activity? How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?
2. What are the broader impacts of the proposed activity? How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

In addition, the following criteria will be used for this program:

1. Does the proposal represent new research in the area of digital libraries, and does it contain new scientific ideas and methods?
2. Does the project demonstrate the need for and advantages of shared international activities, and exploit, as appropriate, new communications methods to link its teams?
3. Are the research groups interacting as true collaborators, displaying complementary and comparable levels of professional expertise?

4. Does the management plan provide mechanisms for effective communication, coordination, progress assessment, and flexibility?
5. Should the research be successful, how many people will benefit from the new technology created?
6. Should the research be successful, how will the content be made available to communities of users?
7. Do the previous efforts of the research teams demonstrate their competence and support their likelihood of achieving the goals of the project?
8. If the work is successful at creating a new information service, does the proposal include a plan by which that service will be continued after the research funding ends, and how credible is that plan?
9. How effective is the project plan for enabling others to draw upon the results of the research?

Integration of Research and Education

One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learner perspectives. PIs should address this issue in their proposal to provide reviewers with the information necessary to respond fully to both NSF merit review criteria. NSF staff will give it careful consideration in making funding decisions.

Integrating Diversity into NSF Programs, Projects, and Activities

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports. PIs should address this issue in their proposal to provide reviewers with the information necessary to respond fully to both NSF merit review criteria. NSF staff will give it careful consideration in making funding decisions.

CATEGORIES OF SUPPORT

All awards for this announcement made by NSF will be as grants or cooperative agreements to academic institutions and qualified non-profit research organizations. Partnership arrangements with other groups in the United States are encouraged, including subcontracts with the proposing organization.

PROPOSAL SCHEDULES AND PREPARATION

Letters of Intent: Due One Month Prior to Proposal Submission

Letters of Intent are encouraged to assist the program in administrative and review preparation. Organizations or persons considering submission of a proposal should send an electronic mail message with the following statement: "I am interested in submitting a proposal to the International Digital Libraries Program," and include the title and brief abstract of the proposed work, as much as is known of the list of participants, including the foreign participants, and the source of funds anticipated for the foreign partners. Letters of intent will not be refereed or evaluated but should contain sufficient information about the topic to help in the selection of reviewers.

Submit the letter of intent as an electronic mail message to idli2@nsf.gov or send a letter of intent to:

**International Digital Libraries Research
Division of Information and Intelligent Systems Suite 1115
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230**

Full Proposals: Target Date January 15, 1999 (first year competition)

January 15 (succeeding years' competition)

The proposals must be marked INTERNATIONAL DIGITAL LIBRARIES - NSF 99-6 in the top left hand box, "Program Announcement", on the cover sheet (NSF Form 1207). Proposals must be prepared as specified in the NSF Grant Proposal Guide, NSF 99-2 and sent to:

**National Science Foundation PPU
International Digital Libraries Research, Suite 1115
4201 Wilson Boulevard
Arlington, VA 22230**

AWARD ADMINISTRATION

NSF requires prospective grantees to furnish, upon request by NSF's Division of Grants and Agreements, basic organization and management information that will assist the NSF Grant Officers in assessing their financial and managerial responsibility. These requirements are described in the NSF 95-26, NSF Grant Policy Manual. Grants awarded as a result of this solicitation are administered in accordance with the terms and conditions of NSF GC-1, "Grant General Conditions," or FDP-III, "Federal Demonstration Partnership General Terms and Conditions," depending on the grantee organization. Any Cooperative Agreement resulting from

this announcement must comply with NSF GC-1 and Cooperative Agreement General Conditions, CA-1.

NSF expects significant findings from research to be promptly submitted for publication by US supported teams, and strongly encourages this practice on the part of the non-US collaborators.

OTHER INFORMATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Grantees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities, and persons with disabilities to compete fully in its programs. In accordance with federal statutes, regulations, and NSF policies, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF (unless otherwise specified in the eligibility requirements for a particular program).

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the program announcement or contact the program coordinator at (703) 306-1636.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation regarding NSF programs, employment, or general information. TDD may be accessed at (703) 306-0090 or through FIRS on 1-800-877-8339.

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested maybe disclosed to qualified reviewers and staff assistants as part of the review process; to applicant institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies needing information as part of the review processor in order to coordinate programs; and to another Federal agency, court or party in acourt or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50,

"Principal Investigator/Proposal File and Associated Records," 63 Federal Register 267 (January 5, 1998), and NSF-51,"Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Reports Clearance Officer; Information Dissemination Branch, DAS; National Science Foundation; Arlington, VA 22230.

YEAR 2000 REMINDER

In accordance with Important Notice No. 120 dated June 27, 1997, Subject: Year 2000 Computer Problem, NSF awardees are reminded of their responsibility to take appropriate actions to ensure that the NSF activity being supported is not adversely affected by the Year 2000 problem. Potentially affected items include: computer systems, databases, and equipment. The National Science Foundation should be notified if an awardee concludes that the Year 2000 will have a significant impact on its ability to carry out an NSF funded activity. Information concerning Year 2000 activities can be found on the NSF web site at <http://www.nsf.gov/oirm/y2k/start.htm>.

Catalog of Federal Domestic Assistance Numbers:

47.070 Computer and Information Science and Engineering
47.075 Social, Behavioral, and Economic Sciences
OMB# 3145-0058
P.T. (34)
K.W. (1000000,0400000,0300000)

AGENCY CONTACTS

Stephen M. Griffin
National Science Foundation
Division of Information and Intelligent Systems
4201 Wilson Boulevard
Arlington, VA 22230
Electronic mail: sgriffin@nsf.gov
Telephone: 703-306-1930
Fax: 703-306-0599

For country specific or regional information, please contact:

Division of International Programs
4201 Wilson Boulevard
Arlington, VA 22230
Electronic mail: intpubs@nsf.gov

Fax: 703-306-0476

Telephones:

Africa, Near East, South Asia: 703-306-1707

Americas: 703-306-1706

East Asia and Pacific: 703-306-1704

Eastern Europe, Newly Independent States: 703-306-1703

Japan and Korea: 703-306-1701

Western Europe: 703-306-1702